

Subject: Mathematics

Grade: Fifth

Standard: #3 Ratios, Proportions, and Percents

Key Concept: Students develop an understanding of ratios, proportions, and percents.

Generalization: Students work with percents.

Background:

Before beginning this lesson the teacher has presented whole class instruction on percents in context. Some good examples are in the book About Teaching Mathematics, A K-8 Resource, ISBN# 0-941355-05-5.

A variety of materials are needed for each interest tier and are specified below.

This lesson is tiered in *product* according to *interest*.

Tier I: ***Geometry Shapes***

Students create designs on grid paper which illustrate a variety of percents. The designs should incorporate several shapes and depending on the abilities of these students you may limit the number of percents they have to illustrate. For example, you may require students to illustrate 10%, 25%, 50%, 60% and then have the students pick four different percents. Have students write an explanation for each design. Materials needed are grid paper, markers or crayons, and lined paper for the explanations.

Tier II: ***Mental Money***

Students mentally solve a variety of problems which involve percents and money. The problems should have at least 8 different values of percents, e.g. 1%, 5%, 10%, 20%, 25%, 50%, 75%, 80%, which are applied to a variety of monetary values, e.g. \$10, \$100, and \$200. Since this lesson intended to be a mental activity, the problems and the students' responses should be recorded. Materials needed include a tape recorder and the problems.

Tier III: *Newspaper Adds*

Students work from advertisements in newspapers or magazines to create percent stories. Supply the students with a complete newspaper or magazine which contains a variety of percents, e.g. percents presented in an article, graph, or table, discount coupons, or discounts of any kind. Students create at least three stories about percents using the information from three different places. Each story must end in a question and require the use of percents to solve. Student supply the answers as well. Materials needed include newspapers and/or magazines and paper for writing the stories and solutions.

Assessment:

Teacher prepares a rubric for assessing the three products. Students are given the rubric before beginning the lesson.